

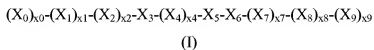
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

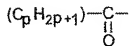
Claims 1-18 (canceled)

Claim 19 (previously presented): A molecule of general formula (I), and the pharmaceutically acceptable salts thereof:



in which

- x0, x1, x2, x4, x7, x8 and x9 each represent, independently, an integer equal to 0 or to 1;
- X₀ represents a group:



with p ranging from 3 to 23;

- X₁ and X₃ each represent a natural or synthetic amino acid in the L or D configuration, each comprising at least one hydroxyl function on its side chain;
- X₂ represents a natural or synthetic amino acid in the L or D configuration chosen from those comprising an alkyl side chain;
- X₄ represents a natural or synthetic amino acid in the L or D configuration chosen from those comprising an aromatic side chain;
- X₅ represents an amino acid in the L or D configuration chosen from lysine, arginine, histidine, aspartic acid, asparagine, glutamic acid and glutamine;
- X₆ represents an amino acid in the L or D configuration chosen from tyrosine, phenylalanine, leucine, isoleucine, alanine, *para*-benzoylphenylalanine and lysine;
- X₇ represents an amino acid in the L or D configuration chosen from glycine, alanine, leucine,

valine, asparagine and arginine;

-X₈ represents an amino acid in the L or D configuration chosen from proline, valine, isoleucine and aspartic acid;

-X₉ represents an amino acid in the L or D configuration chosen from serine, alanine, lysine, arginine and tryptophan;

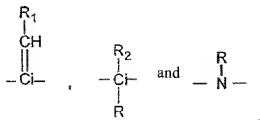
-the bond between two successive amino acids X_i-X_{i+1}, denoted q_{i to i+1}, i = 1 to 8 can be a peptide

$$\begin{array}{c} \text{O} \\ || \\ \text{bond } -\text{C}-\text{NH}- \end{array}$$
 or a pseudopeptide bond chosen from: CO-O, CO-S, CO-CH₂, CO-N(Mc), NH-CO, CH=CH, CH₂-CH₂, CH₂-S, CH₂-O, CS-NH, CH₂-NH, CO-CH₂-NH, CO-NH-NH, CO-NH-N= and CO-N(NH₂);

-the amino acids stated above X_i, i = 1 to 9 being capable of comprising a modification of their α-carbon, denoted C_i, i = 1 to 9 and bearing the side chain R of the amino acid, which modification consisting of the replacement of:



with a group chosen from:



the groups R and CH-R₁ representing the side chain of the amino acid and R₂ representing a C₁-C₆ alkyl group; R-R₂ can constitute a ring,

-the pseudopeptides of the invention also corresponding to the following conditions:

x₀ is equal to 1

or

one of the bonds q_{i to i+1}, i = 1 to 8 is a pseudopeptide bond

or

one of the C_i, i = 1 to 9 comprises one of the modifications stated above, wherein said

molecule of formula (I) is capable of modulating the proteasome.

Claim 20 (previously presented): The molecule as claimed in claim 19, wherein one or more of the following conditions is verified:

at least one of the integers x_0 , x_1 , x_2 , x_4 , x_7 , x_8 and x_9 is equal to 1;

X_1 and X_3 , which may be identical or different, are chosen from threonine and serine;

X_2 is chosen from valine, leucine and isoleucine; or

X_4 is chosen from phenylalanine, tryptophan, tyrosine and *para*-benzoylphenylalanine.

Claim 21 (previously presented): The molecule as claimed in claim 20, comprising 4 to 8 amino acids.

Claim 22 (previously presented): A molecule as claimed in claims 19 to 21, wherein $x_0 = 1$.

Claim 23 (canceled)

Claim 24 (previously presented): The molecule as claimed in claim 19, wherein one or more of the following conditions are verified:

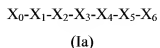
-at least one of X_1 and of X_3 represents threonine,

- X_2 is chosen from isoleucine and valine,

- X_4 is chosen from phenylalanine, tyrosine and *para*-benzoylphenylalanine, or

-at least 2 of the integers x_0 , x_1 , x_2 , x_4 , x_7 , x_8 and x_9 are equal to 1.

Claim 25 (previously presented): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (Ia):



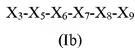
in which the bonds q_i to $i+1$ between the amino acids X_i and X_{i+1} , $i = 1$ to 5 are peptide or

pseudopeptide bonds.

Claim 26 (canceled)

Claim 27 (canceled)

Claim 28 (previously presented): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (Ib):



in which:

- at least one of the bonds between two successive amino acids is a pseudopeptide bond,
- or
- one of the α -carbons of one of the amino acids is a modified α -carbon.

Claim 29 (currently amended): The molecule as claimed in claim 19, wherein the molecule is:

CH₃-(CnH_{2n})-CO-TVTYDY with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 1](#));

CH₃-(CnH_{2n})-CO-TISYDY with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 2](#));

CH₃-(CnH_{2n})-CO-TVSYKF with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 3](#));

CH₃-(CnH_{2n})-CO-TITFDY with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 4](#));

CH₃-(CnH_{2n})-CO-TITYKF with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 5](#));

CH₃-(CnH_{2n})-CO-TITYEY with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 6](#));

CH₃-(CnH_{2n})-CO-TITYDF with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 7](#));

CH₃-(CnH_{2n})-CO-TVTYKL with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 8](#));

CH₃-(CnH_{2n})-CO-TVTYKY with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 9](#));

CH₃-(CnH_{2n})-CO-TVTFKF with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 10](#));

CH₃-(CnH_{2n})-CO-TITYDL with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 11](#));

CH₃-(CnH_{2n})-CO-TVTFDY with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 12](#));

CH₃-(CnH_{2n})-CO-TVTFKF with n=4, 6, 8, 10, 12, 14, 16, 18 ([SEQ ID NO: 13](#));

CH₃-(C_nH_{2n})-CO-TV₁YK₂F with n=4, 6, 8, 10, 12, 14, 16, 18 (SEQ ID NO: 43);

TNL*GPS;

SEK*RVW;

TRA*LVR;

SNL*NDA; or

THI*VIK;

~~Ava represents a δ -aminovaleric acid group;~~

~~Bpa represents a *para*-benzoylphenylalanine group; and~~

wherein * represents:

-a bond chosen from ester, thioester, keto methylene, keto methyleneamino, N-methylamide, inverse amide, Z/E vinylene, ethylene, methylenethio, methyleneoxy, thioamide, methyleneamino, hydrazino, carbonylhydrazone and N-amino bonds, or
-the presence of an aza-amino acid as a substitution for one of the amino acids adjacent to *.

Claim 30 (previously presented): The molecule as claimed in claim 19 coupled on its C-terminal end and/or on its N-terminal end with another molecule which promotes its bioavailability.

Claim 31 (previously presented): A composition comprising the molecule as claimed in claim 19 in a pharmaceutically acceptable carrier.

Claim 32 (currently amended): A method for ~~prevention and~~ treatment of a disorder or a pathology associated with proteasome activity comprising administering to an animal in need thereof a molecule as claimed in claim 19.

Claim 33 (currently amended): The method of ~~as claimed in~~ claim 32, wherein the disorder or pathology is selected from: cancers involving hematological tumors or solid tumors; autoimmune diseases; AIDS; inflammatory diseases; ~~cardiac pathologies; pathologies associated with the consequences of ischemic processes at the myocardial, cerebral or pulmonary level;~~ allograft rejection; and amyotrophy; ~~cerebral strokes; traumas; burns; and pathologies associated with aging.~~

Claim 34 (previously presented): A method for radiosensitizing a tumor comprising contacting the tumor with a compound as claimed in claim 19.

Claim 35 (previously presented): A cosmetic and/or dermatological composition comprising a molecule as claimed in claim 19, in a cosmetically and/or dermatologically acceptable carrier.

Claim 36 (previously presented): A cosmetic process for preventing or treating the appearance of effects of chronological skin aging and/or of photoaging, comprising applying to skin the molecule as claimed in claim 19 in a cosmetically acceptable carrier.

Claim 37 (previously presented): The molecule as claimed in claim 21, wherein the molecule comprises 5 to 7 amino acids.

Claim 38 (previously presented): The molecule as claimed in claim 21, wherein the molecule comprises 6 amino acids.

Claim 39 (previously presented): The molecule as claimed in claim 24, wherein at least 3 of the integers x_0 , x_1 , x_2 , x_4 , x_7 , x_8 and x_9 are equal to 1.

Claim 40 (currently amended): The molecule as claimed in claim ~~19~~ 26, wherein p ranges from 2 to 6.

Claim 41 (currently amended): The molecule as claimed in claim ~~19~~ 27, wherein p ranges from 5 to 19.

Claim 42 (previously presented): The method as claimed in claim 32, wherein the animal is a human.

Claim 43 (currently amended): The method as claimed in of claim ~~32~~ 33, wherein the

~~pathologies associated with aging are chosen from~~ disorder is Alzheimer's disease and Parkinson's disease.

Claim 44 (previously presented): A method for modulating the proteasome of a cell comprising administering the molecule of claim 19 to a cell.

Claim 45 (currently amended): The molecule as claimed ~~claim~~ in claim 19, wherein X_1 and X_3 both represent threonine.